

### **REMARKS**

Claims 1, 2, 4 and 5 are under consideration. Claim 3 has been canceled.

Claims 2 and 4 have been amended to overcome the objections of the Examiner based on 35 U.S.C. §112. Claim 5, which is claim 3 rewritten in independent form, also avoids the objections under 35 U.S.C. §112.

The following is in response to claim rejections under 35 U.S.C. §103 as being unpatentable over Daskivich (U.S. 3,811,903).

The thrust of the Daskivich patent is the concept of coating granules of thermoplastic material with silicone fluid so that the granules can be injection molded in the manner of conventional plastics (such as polystyrene). The exact composition of the material is unimportant and is not specified in the broad claims. The patent has nothing to do with pattern materials which can be machined to shape. In particular, the patent has nothing to do with a composition which can be cast in larger blocks, for example, blocks 6" x 6" x 6" and larger, without internal shrinkage and surface cavitation so that the blocks can be machined into usable pattern shapes. The Examiner notes that the patent discloses that the composition melt can be cooled to form solid blocks (col. 4, line 40), but she should note that these blocks are disclosed as being subsequently reduced to granules of a size that can be injection molded. Since the blocks are reduced to granules, it makes no difference whether they have surface cavitation or internal shrinkage.

Since a particular composition is not critical, the patent discloses many exemplary materials without limitation to their particular affect on the physical

characteristics of the pattern material. The waxes, for example, include such materials as spermaceti, beeswax, Chinese wax, stearic acid, carnuba, Japan, bayberry, candelilla, lauric acid, ozocerite, montan, ceresin, micro-crystalline waxes, paraffin waxes, Fisher-Tropes wax, stearone and laurone. Clearly, no one would think that these materials are equivalent. They are listed merely because they are commonly used components of pattern material compositions. The various listed waxes can and do result in different physical properties.

The rejection under 35 U.S.C. §103 is based on the proposition that a fatty acid and a fatty acid ketone are "equivalent". For example, on page 5, line 4, it is stated that "based on their identified disclosed equivalency, it would have been obvious to the skilled artisan, following the teachings of Daskivich at col. 3, lines 1-18 and the exemplified formulations @ col. 4, lines 1-29, to use a combination of stearic acid (fatty acid) and stearone and/or laurone (fatty acid ketones) in an ethylene/vinyl acetate polymer-containing formulation- -" (emphasis added). This proposition of equivalency espoused by the Examiner is not supported by the patent disclosure of Daskivich and is not in accordance with accepted chemical knowledge and expertise. The mere listing of several pattern material waxes does not make them functionally equivalent, either individually or in combination.

As pointed out in the attached Declaration of inventor Horton, fatty acids and fatty acid ketones are not equivalent materials. He points out that there are great differences in their chemical formulas and molecular weights with the ketones having a higher molecular weight than the fatty acids. Since the properties of waxes

depend upon their molecular weights, number of carbon atoms and substituent chemical groups, fatty acid ketones and fatty acids cannot be considered equivalent of each other either functionally or chemically. As the Examiner may know, fatty acid ketones are made from the corresponding fatty acids at considerable expense. One wonders why anyone would make fatty acid ketones if they are merely the equivalent of fatty acids, as stated by the Examiner.

The Horton Declaration sets out a simple experiment that was conducted to demonstrate the lack of equivalency between fatty acid ketones and fatty acids when combined with ethylene-vinyl acetate. A sample of material made of ethylene-vinyl acetate, laurone and stearone was compared to a sample material made from ethylene vinyl acetate, lauric acid and stearic acid. The fatty acid-containing sample was soft and had a pock-marked condition of shallow depressions over its entire vertical surface. The fatty acid ketone sample was harder and had a perfectly smooth surface. Certainly, this shows that the ketones and acids are not equivalent.

The test set out in the Horton Declaration indicates that fatty acids are less desirable than fatty acid ketones when combined with ethylene vinyl acetate. Any skilled artisan knowing the different effects of the two materials would not be lead to combine them. In particular, a skilled artisan faced with the problem of eliminating surface cavitation and internal shrinkage in blocks of pattern material made from ethylene vinyl acetate and fatty acid ketone would not think of adding a fatty acid which would seem to be an inferior component.

On page 5, lines 16-23, the Examiner, citing ex parte Obiaya, argues that an

"advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious". Obiaya does not apply because Daskivich does not suggest combining fatty acid ketone and fatty acid. As pointed out above, the differences between a combination of fatty acid ketone and fatty acid compared to either component individually would not be obvious to a skilled artisan. The combination of fatty acid and fatty acid ketone results in a totally unexpected and unpredictable synergism that is greater than the result of adding either component individually. The combination of either fatty acid or fatty acid ketone with ethylene-vinyl resin results in a material which has significant draw-backs. There is no suggestion whatsoever that these draw-backs can be eliminated by combining the two components.

The following is in response to the claim rejections under 35 U.S.C. §102 as being anticipated by or, in the alternative, under 35 U.S.C. §103 (a) as obvious over applicant's applied admission in combination with Daskivich.

The Examiner argues in paragraph 11 that "One having ordinary skill in the art would have readily envisaged adding the fatty acid wax, viz., stearic acid, identified as an equivalent to the fatty acid ketone wax (stearone/laurone), of Daskivich to the material impliedly admitted as old and this, as such, engenders an anticipation of the claimed invention." The Examiner offers no evidence in support of this position which is contradicted by the Horton Declaration. Contrary to the Examiner's position, one having ordinary skill in the art would have never envisioned the synergistic effect of combining fatty acid ketone with fatty acid. The

Examiner's position has absolutely no support in the Daskivich patent and is not supported by any known theory of chemical equivalency. The Examiner further argues that "it would have been obvious to one having ordinary skill in the art to add the fatty acid wax component (stearic acid) of Daskivich who teaches that wax components such as stearic acid (fatty acid) and (stearone and laurone (fatty acid ketones)) are identified as useable equivalents in formulating similar such materials containing ethylene-vinyl resins such as ethylene-vinyl acetate to the implied admittedly old composition of ethylene-vinyl acetate + fatty acid ketone, and with a reasonable expectation of success." As pointed out above, Daskivich does not teach equivalency of fatty acid and fatty acid ketones. The patent merely lists these waxes among several others as being used in pattern material compositions. The fact that the two materials are listed among many others does not admit of equivalency. For example, it would follow from the Examiner's reasoning that beeswax is the equivalent of a Fisher-Tropes wax which it is believed the Examiner would agree is not true.

The additional prior art cited by the Examiner has been considered and is not believed relevant to the claims.


In light of the foregoing, the claims under consideration are clearly patentable so that the application should be passed to issue.

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If there are any additional fees resulting from this communication, please  
charge same to our Deposit Account No. 16-0820, our Order No. 35990.

Respectfully submitted,

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